



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
01.08.2018 Bulletin 2018/31

(51) Int Cl.:
A61M 1/14 (2006.01)

(21) Application number: **17153740.0**

(22) Date of filing: **30.01.2017**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

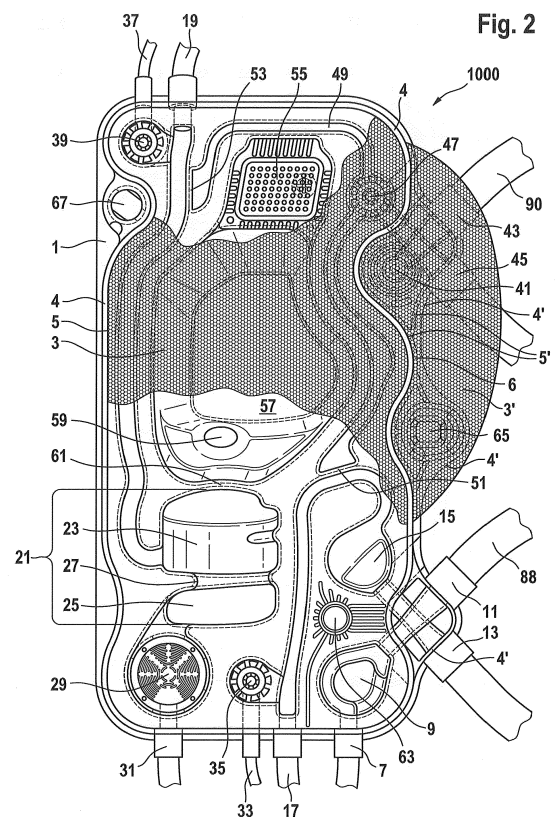
(72) Inventors:
• **Fini, Massimo**
26010 Casaletto Vaprio (CR) (IT)
• **Reiter, Reinhold**
26013 Crema (IT)
• **Patrini, Edoardo**
26010 Casaletto Vaprio (IT)

(71) Applicant: **Fresenius Medical Care Deutschland
GmbH**
61352 Bad Homburg (DE)

(74) Representative: **Bobbert & Partner**
Patentanwälte PartmbB
Postfach 1252
85422 Erding (DE)

(54) **MEDICAL FLUID-CONDUCTING CASSETTE WITH CONTACT PROTECTION**

(57) The present invention relates to a medical fluid-conducting cassette (1000) for a medical fluid treatment, comprising: a hard body (1) comprising channels (49) for guiding fluids through the cassette (1000); a first film section (3) arranged to cover parts of the hard body (1) and arranged to cover at least one of the channels (49) against an exterior of the blood cassette (1000); at least one connection point (41) configured to connect at least one of the channels (49) with an exterior of the blood cassette (1000) in a fluid communication; at least one covering device attached to the hard body (1) and arranged so as to cover the connection point (41), releasable or removable, wherein the covering device is or comprises a second film section (3') made from the same material as the first film section (3).



Description

[0001] The present invention relates to a medical fluid-conducting cassette for a medical fluid treatment according to claim 1, for example a blood cassette such as can be used in dialysis devices. It also relates to a method for producing a medical fluid-conducting cassette for a medical fluid treatment or for covering a hard body thereof according to claim 15.

[0002] The handling of fluid-conducting cassettes, for example blood cassettes, by medical personnel always bears the risk that, during unpacking of a cassette from the sterile packaging, connection points which are used for adding a fluid into the cassette during the treatment of the patient (in short: fluid addition point of the cassette) are accidentally touched by a finger or another object and are thus contaminated. From EP 2 736 562 B1 a contact protection apparatus is known that can be used to cover the connection point until it is used.

[0003] One object of the present invention is to propose a further medical fluid-conducting cassette for a medical fluid treatment comprising both a connection point and a covering device for covering that connection point of the medical fluid-conducting cassette.

[0004] The object according to the invention is accomplished by a medical fluid-conducting cassette with the features of claim 1. It is further accomplished by a method with the features of claim 15.

[0005] The medical fluid-conducting cassette (short: cassette hereinafter) according to the invention comprises a hard part, main body or hard body (hereinafter short: hard body), e. g. made from hard resin.

[0006] The hard body comprises channels, or parts of channels, for guiding fluids through, or within, the cassette.

[0007] The hard body further comprises a first film section. The first film section is arranged to cover parts of the hard body. At the same time, it is arranged to cover at least one of the channels and/or an interior of the cassette.

[0008] The hard body further comprises at least one connection point. The connection point is configured to connect for example tubing in order to provide a fluid communication between at least the channel and an exterior of the cassette.

[0009] The hard body further comprises at least one covering device. The covering device is attached to the hard body and arranged so as to cover the connection point. The covering device is attached to the hard body in a releasable or removable manner such that it can be removed from the cassette by a user when using the cassette.

[0010] Also, the covering device is a second film section made from the same film material as the first film section. Alternatively, the covering device comprises such a second film section.

[0011] A method according to the present invention relates to covering a hard body of a medical fluid-conduct-

ing cassette for a medical fluid treatment with a film material.

[0012] The method comprises providing a cassette, the cassette comprising: a hard body comprising channels for guiding fluids through, or within, the cassette; at least one connection point configured to connect at least one of the channels with an exterior of the blood cassette in a fluid communication.

[0013] The method comprises also the steps: attaching a first film section to the hard body so as to cover parts of the hard body and so as to cover at least one of the channels against an exterior of the blood cassette; attaching a second film section to the hard body so as to cover the connection point in a releasable or removable manner, wherein the second film section comprises the same material as the first film section or consists thereof.

[0014] Advantageous developments of the present invention are each also the subject of the dependent claims.

[0015] In all of the following embodiments, the use of the expression may be or may have and so on, is to be understood synonymously with preferably is or preferably has, respectively, and so on, and is intended to illustrate exemplary embodiments according to the invention.

[0016] Whenever numerical words are mentioned herein, the person skilled in the art shall recognize or understand them as indications of numerical lower limits. Unless it leads the person skilled in the art to an evident contradiction, the person skilled in the art shall comprehend the specification for example of "one" encompassing "at least one". This understanding is also equally encompassed by the present invention as the interpretation that a numeric word, for example, "one" may alternatively mean "exactly one", wherever this is evidently technically possible for the person skilled in the art. Both are encompassed by the present invention and apply herein to all used numerical words.

[0017] Embodiments according to the invention may comprise some or all of the following features in arbitrary combination.

[0018] In some exemplary embodiments according to the present invention the covering device can be releasable or removable from the hard body without any tools or without being destructive beyond a pre-determined degree or measure.

In some exemplary embodiments according to the present invention the first film section and the second film section are integrally formed or produced, e. g. as a common piece of film material.

[0019] In some exemplary embodiments according to the present invention the first film section and the second film section are linked one to the other by at least one perforation section. Alternatively, or in addition, the first film section and the second film section are linked one to the other by at least two connectors which are integral with both the first film section and the second film section. The connectors preferably being spaced from each other, e. g. by spaced or gaps between corresponding sections

thereof.

[0020] In some exemplary embodiments according to the present invention the first film section and the second film section are welded one to the other.

[0021] In some exemplary embodiments according to the present invention the first film section and the second film section are glued one to the other.

[0022] In some exemplary embodiments according to the present invention both the first film section and the second film section are welded to the hard body.

[0023] In some exemplary embodiments hereof, the welding method or intensity used for welding the two film sections to the hard body differ for the first and the second film section. For example, the second film section may be welded to the hard body while using less energy for the welding process. It may be welded by a thinner welding seam or line. It may be welded not along a line but by some welding spots or points only. It may be welded by not forming a tight seal between the covered area of the hard body and the exterior.

[0024] In some exemplary embodiments according to the present invention the second film section comprises an interconnecting element configured for connecting the second film section to a transport packaging of the cassette.

[0025] The transport packaging may be the packaging of the cassette that ensures that the cassette remains sterile until the packaging is opened and the cassette thus exposed to the unsterile environment or exterior.

[0026] In some exemplary embodiments according to the present invention the interconnecting element is attached to the second film section only, that is, it is not attached to the first film section at the same time.

[0027] In some exemplary embodiments according to the present invention the interconnecting element may be attached to the side of the second film section facing the exterior of the cassette and/or to the side of the second film section not facing the hard body side.

[0028] In some exemplary embodiments according to the present invention the cassette is packed into a transport packaging. The second film section is connected to the transport packaging of the cassette by the interconnecting element.

[0029] In some exemplary embodiments according to the present invention the interconnecting element is an adhesive strip, material or layer.

[0030] In some exemplary embodiments according to the present invention the interconnecting element is a strip with adhesive properties on both sides.

[0031] In some exemplary embodiments according to the present invention the second film section was sterilized together with the first film section.

[0032] In some exemplary embodiments according to the present invention at least one connection point is a connection point or coupling for a substitute line or a substitute addition site or a coupling.

[0033] In some exemplary embodiments according to the present invention the cassette is a blood cassette.

[0034] In some exemplary embodiments according to the present invention the method encompasses attaching the first film section and the second film section to the hard body in the same working step or at the same time.

[0035] In some exemplary embodiments according to the present invention the method encompasses attaching the first film section and the second film section which were produced integrally with each other.

[0036] In some exemplary embodiments according to the present invention the method encompasses providing a perforation line or gaps or slits between the first film section and the second film section of the covering device.

[0037] In some exemplary embodiments according to the present invention the method encompasses attaching at least one interconnecting element to the second film section on a side thereof that does not face the connection point.

[0038] In some exemplary embodiments according to the present invention the method encompasses both the first film section and the second film section, which are welded, or are being welded, to the hard body of the cassette.

[0039] In some exemplary embodiments according to the present invention the method encompasses both the first film section and the second film section, which are first welded, or are first being welded, to the hard body of the cassette and then provided with gaps or a perforation line between them.

[0040] In some embodiments according to the invention, the second film section comprises a section which protrudes from the edge of the cassette.

[0041] In some embodiments according to the invention, the at least one connection point, which is or will be covered by the covering device, is a connection point, joint or interface for a substitute line.

[0042] In a further embodiment according to the invention, the medical fluid-conducting cassette is designed as a blood cassette, for example for dialysis treatment, in particular for hemodialysis, hemofiltration, hemodiafiltration, peritoneal dialysis, acute dialysis, and so on.

[0043] Some or all embodiments according to the invention may comprise one, more or all of the advantages mentioned above and/or hereinafter.

[0044] Detaching the contact protection apparatus is advantageously possible without considerable application of force due to the above-mentioned design of the covering device or the second film section.

[0045] In some advantageous embodiments, there is a reduced risk of unintentionally contaminating the connection point of the cassette, for example by touching it by hand, as the connection point is safely covered by the second film section.

[0046] Since the second film section may extend beyond the rim of the cassette neither the connection point itself nor any point nearby the connection point does have to be touched in order to detach the second film section

from the cassette. In fact, using the interconnecting element described herein, the second film section covering the connection point may even be removed automatically, i. e., without any further action having to be taken by the user. In any way, the present invention may contribute to minimizing the risk of unintended contamination during detachment of the device covering the connection point.

[0047] The second film section is made from the same material as the first film section needed for covering the hard body and, in some embodiments, for covering or completing the fluid-guiding channels of the cassette. Thus, the second film portion may advantageously undergo the same sterilization processes as the cassette comprising the first film section.

[0048] Also, since the first film section is cut from a film layer necessarily bigger or differently shaped than the hard body of the cassette, applying the first film section always means that some film material has to be cut off and disposed. According to the present invention, however, parts of this waste film material is being used as the second film section. Hence, in some embodiments according to the present invention providing the second film section does not even require providing additional material. Rather, there are no additional material costs to be born for the second film section.

[0049] Detaching the contact protection apparatus from the cassette may in some embodiments be advantageously carried out with just one hand.

[0050] Since the second film section is in certain embodiments according to the invention a soft or flexible film material the risk of injury for the user during its operation as well as the risk of damaging other parts of the contact protection apparatus or the cassette, for example by sharp contours, is minimized.

[0051] As it is possible to do without the use of adhesives for mounting the second film section to the cassette, no residual adhesive remains at the cassette when the second film section is detached from the cassette and thus no adhesive can penetrate into the interior of the cassette via the connection point.

[0052] The present invention is hereafter exemplarily explained by means of the appended drawings, in which identical reference numerals refer to identical or similar components. In the figures it applies that:

Fig. 1 shows a medical fluid-conducting cassette according to the present invention from one side;

Fig. 2 shows the medical fluid-conducting cassette of Fig. 1;

Fig. 3 shows the medical fluid-conducting cassette of Fig. 2;

Fig. 4 shows a medical fluid-conducting cassette according to another embodiment according to the present invention from one side;

Fig. 5 shows the medical fluid-conducting cassette in another embodiment according to the present invention; and

5 Fig. 6 shows the medical fluid-conducting cassette of Fig. 5 in a transport packaging.

[0053] Fig. 1 shows a possible embodiment of the medical fluid-conducting cassette 1000 (short: cassette 1000) according to the present invention. The cassette 1000 comprises a hard body 1 comprising channels such as the substitute conduit 49 for guiding a medical fluid such as substitute or blood through the hard part 1.

[0054] The hard part 1 is covered by a first film section 3.

[0055] The cassette 1000 comprises a connection section 41 embodied, in this exemplary embodiment, as a substitute addition site.

[0056] For better understanding only a second film section that is also comprised by the cassette 1000 according to the present invention is not shown in Fig. 1, but in Fig. 2 to Fig. 4.

[0057] As discussed above, the substitute addition site 41 needs to be protected against the environment in a manner such that it remains sterile until use of the cassette 1000.

[0058] Fig. 2 shows the cassette 1000 of Fig. 1. In contrast to Fig. 1, a second film section 3' is illustrated in Fig. 2.

[0059] The second film section 3' is made from the same material as the first film section 3. It is arranged so as to cover the connection point, here the substitute addition site 41.

[0060] Thus, an unintended touching of the substitute addition site 41 (the connection point) of the cassette 1000 before its use, i.e. before mounting the cassette 1000 to a fluid treatment apparatus is prevented by means of the covering device. Since the second film section 3' covers not only the very spot of the substitute addition site 41, but has been provided with a generous rim or overhang with respect to the hard body 1, unintended touching of the connection point is prevented by the second film section 3' even during removal of it.

[0061] As can be seen from Fig. 1 and Fig. 2, the first film section 3 seals the channels of the hard body 1 such as the substitute conduit 49 against an exterior of the cassette 1000 by a peripheral weld by which the first film section 3 is welded to the sealing bar 4. The sealing bar 4 can be a closed structure with no beginning and no end; it may project from the main level of the hard body 1.

[0062] Likewise, the second film section 3' can be welded to the hard body 1 as well. The weld can be a closed structure, it may be continuous or intermittent, it may follow both the sealing bar 4 and/or a another bar 4' positioned on opposite sides of the connection point 41 and thus, together with the sealing bar 4, enclosing the connection point 41.

[0063] The aforementioned closed structure can be a

combination of the sealing bar 4 and the further bar 4'.

[0064] Alternatively, or in addition, the second film section 3' can be glued to the hard body 1, preferably in a manner that allows easy removal of the second film section 3' when required.

[0065] The first film section 3 and the second film section 3' can be made from a common piece or layer of film. However, between the first film section 3 and the second film section 3' a perforation line 6 can be provided. The perforation may allow tearing the second film section 3' off the first film section 3 or the remainder of the cassette 1000 in order to use the cassette 1000 or the substitute addition site 41.

[0066] A perforation may be a combination of a multitude of openings and interposed non-openings (e.g., film material). Likewise, if the second film section 3' is interconnected to the first film section 3 one might also speak of a perforation in accordance with the present invention.

[0067] The first film section 3 and the second film section 3' may be interconnected or integral with each other by a perforation which is a sequence of subsequent openings separated from each other by a multitude of film sections in Fig. 2. Alternatively the first film section 3 and the second film section 3' may be interconnected or integral with each other by a small number of struts or connectors, which are preferably also made from the film material comprised by the first film section 3 and the second film section 3'. For example, two, three or a few more struts or connectors should be enough for keeping the second film section 3' in place. Also, the smaller the number of struts or connectors is the easier it is for the user to remove the second film section 3' when using the cassette 1000.

[0068] The cassette 1000 may further comprise one or more of the following elements in any arbitrary combination: A sealing bar 4, a sealing bar 4', a peripheral weld 5, a peripheral weld 5', a perforation line 6, an arterial patient connection 7, an arterial pressure measurement chamber 9, a connector 11 for the exit of blood from cassette 1000, a connector 13 for the entry of blood into cassette 1000; a chamber 15 with arterial post-pump, or pre-filter, pressure measurement site; an arterial filter conduit 17; a venous filter conduit 19; a venous blood chamber 21; an upper space 23 of the venous blood chamber 21; a lower space 25 of the venous blood chamber 21; a cross-sectional restriction 27 of the hard part 1; a clot trap 29; a venous patient connection 31; an arterial addition site 33; a check valve 35 of the arterial addition site 33; a venous addition site 37; a check valve 39 of the venous addition site 37; a connector for exit of substitute from the cassette 1000; a connector 45 for entry of substitute into the cassette 1000; a check valve 47 for addition of substitute; a pre-dilution addition valve 51 (phantom valve); a post-dilution addition valve 53 (phantom valve); a single-needle sterile membrane 55; a single-needle chamber 57; a blood surge redirection element 59; a single-needle blood valve 61 (phantom valve); an evacuation site 63 for vacuum coupling; a pri-

mary alignment center 65; a secondary alignment site 67; a pump tube segment 88 of blood pump; and a pump tube segment 90 of substitute pump.

[0069] Either one of sealing bar 4 and sealing bar 4' may protrude from the hard body 1 or from the level of the first film section 3.

[0070] In Fig. 2 the sealing bar 4 is shown not to be covered by a film at all. The invention is, however, not limited to this. Rather, the film layer of which the first film section 3 and the second film section 3' are made may cover the sealing 4 as well. Any perforation, gaps or the like may, for example, be arranged on top or next to the sealing bar 4.

[0071] Fig. 3 shows the medical fluid-conducting cassette of Fig. 2. What is highlighted in Fig. 3 is the path along which the second film section 3' can be welded to the hard body 1 of the cassette 1000.

[0072] As can be seen in Fig. 3, the welding path can be or may circumscribe a closed structure, surrounding the connection point 41 in a closed manner or loop. It may, as in Fig. 3, have the shape of the number "8".

[0073] Also, in Fig. 3 as may be the case in any other embodiment according to the present invention an interconnecting element 150 is connected to the second film section 3'.

[0074] The interconnecting element 150 can be an adhesive, a sticky tape, a Velcro fastener, a tape that is adhesive on both sides or double-sided adhesive tape, or the like.

[0075] The interconnecting element 150 serves to keep the second film section 3' securely to a lid 201 of a transport packaging 200 only shown in Fig. 6 and is, hence, discussed only with respect to Fig. 6.

[0076] Fig. 4 shows a medical fluid-conducting cassette 1000 according to another embodiment according to the present invention.

[0077] The second film section 3' comprises a flap or removal flap 91 which extends from a rim of the second film section 3' and may facilitate getting a grip on the second film section 3' in order to tear it off the cassette 1000.

[0078] Also, two end sections or edge sections 93 and 95 are emphasized by circles in Fig. 4. At sections 93 and 95 the sealing bar 4' joins with the sealing bar 4. In the example of Fig. 4, this junction is where the second film section 3' ends. In other embodiments according to the present invention, there is no such junction, but the second film section 3' ends nevertheless in some end sections.

[0079] At at least one of its end or edge sections 93, 95, the second film section 3' may be connected to the first film section 3 in a manner which differs from how the two film sections 3, 3' are interlinked with each other. For example, in either of sections 93, 95, the two film sections 3, 3' may be integral without perforation between them. That way, the second film section 3' may be firmly connected to the first film section 3. A perforation between them, e. g., between the two edge sections 93, 95 may

not be needed in those embodiments. In particular, the two film sections 3, 3' may be cut into two separate pieces between the two edge sections 93, 95 that are solely responsible for keeping the second film section 3' to the first film 3 or for connecting them with each other.

[0080] In some embodiments according to the present invention, the edge sections 93, 95 are chosen such that they do not cover a rib of the hard body 1 and/or are not supported by a rib or other hard body structure from underneath.

[0081] Fig. 5 shows a medical fluid-conducting cassette 1000 in yet another exemplary embodiment of the present invention.

[0082] Another interconnecting element 150 is connected to the second film section 3'. It may be provided as a substitute or an alternative to the one shown in Fig. 3.

[0083] Again, the interconnecting element 150 can be an adhesive, a sticky tape, a Velcro fastener, a tape that is adhesive on both sides or double-sided adhesive tape, or the like.

[0084] The interconnecting element 150 serves to keep the second film section 3' securely to a lid 201 of a transport packaging 200 only shown in Fig. 6 and is, hence, again further discussed with respect to Fig. 6.

[0085] Fig. 6 shows a transport packaging 200. The transport packaging 200 comprises a lid 201 covering or sealing a reception 203 of the transport packaging 200. The reception 203 holds or houses a cassette 1000 like that of Fig. 3. The cassette 1000 comprises the interconnecting element 150 mentioned above.

[0086] As can be derived from the illustration of Fig. 6, the interconnecting element 150 has obviously been attached to the lid 201 during the packing of the cassette 1000 into the transport packaging 200. Also, as is indicated by the arrow indicating that the lid 201 is being opened in Fig. 4, the interconnecting element 150 does not only stick to the lid 201 but also lifts or takes the second film section 3' with it which in turn is attached to the interconnecting element 150. That way the second film section 3' is removed from the cassette 1000 merely by opening the lid 201 of the transport packaging 200 upon opening the latter.

Reference numerals

[0087]

1000	cassette
1	hard part or hard body
3	first film section
3'	second film section
4	sealing bar
4'	sealing bar
5	peripheral weld
5'	peripheral weld
6	perforation line
7	arterial patient connection
9	arterial pressure measurement chamber

11	connector for the exit of blood from cassette 1000, or: blood outlet connector
13	connector for the entry of blood into cassette 1000, or: blood inlet connector
5 15	chamber with arterial post-pump, or pre-filter, pressure measurement site
17	arterial filter conduit
19	venous filter conduit
21	venous blood chamber
10 23	upper space of the venous blood chamber 21
25	lower space of the venous blood chamber 21
27	cross-sectional restriction of the hard body 1
29	clot trap
31	venous patient connection
15 33	arterial addition site
35	check valve of the arterial addition site 33
37	venous addition site
39	check valve of the venous addition site 37
41	substitute addition site
20 43	connector for exit of substitute from the cassette 1000
45	connector for entry of substitute into the cassette 1000
47	check valve for addition of substitute
25 49	substitute conduit
51	pre-dilution addition valve (phantom valve)
53	post-dilution addition valve (phantom valve)
55	single-needle sterile membrane
57	single-needle chamber
30 59	blood surge redirection element
61	single-needle blood valve (phantom valve)
63	evacuation site for vacuum coupling
65	primary alignment center
67	secondary alignment site
35 88	pump tube segment of blood pump
90	pump tube segment of substitute pump
91	flap
93	end sections or edge section
40 95	end sections or edge section
150	interconnecting element
200	transport packaging
201	lid
45 203	reception

Claims

- 50 1. A medical fluid-conducting cassette (1000) for a medical fluid treatment, comprising:
- a hard body (1) comprising channels (49) for guiding fluids through the cassette (1000);
 - 55 - a first film section (3) arranged to cover parts of the hard body (1) and arranged to cover at least one of the channels (49) against an exterior of the blood cassette (1000);

- at least one connection point (41) configured to connect at least one of the channels (49) with an exterior of the blood cassette (1000) in a fluid communication;
- at least one covering device attached to the hard body (1) and arranged so as to cover the connection point (41),

characterised in that

the covering device is or comprises a second film section (3') made from the same material as the first film section (3).

2. The medical fluid-conducting cassette (1000) according to claim 1, wherein the first film section (3) and the second film section (3') are integrally formed or produced.
3. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the first film section (3) and the second film section (3') are linked one to the other by at least one perforation section (6) and/or at least two connectors integral with both the first film section (3) and the second film section (3'), the connectors preferably being spaced from each other.
4. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the first film section (3) and the second film section (3') are welded one to the other.
5. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the first film section (3) and the second film section (3') are glued one to the other.
6. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the second film section (3') is welded to the hard body (1).
7. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the first film section (3) and the second film section (3') are welded to the hard body (1), wherein the welding method or parameters used for the two film sections (3, 3') differs for each of the sections (3, 3').
8. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the second film section (3') comprises an interconnecting element (150) configured for interconnecting the second film section (3') to a transport packaging (200) of the cassette (1000).
9. The medical fluid-conducting cassette (1000) according to claim 8, packed into the transport pack-

aging (200), wherein the second film section (3') is interconnected to the transport packaging (200) of the cassette (1000) by the interconnecting element (150).

10. The medical fluid-conducting cassette (1000) according to one of claims 8 or 9, wherein the interconnecting element (150) is an adhesive strip, material or layer.
11. The medical fluid-conducting cassette (1000) according to one of claims 8 or 10, wherein the interconnecting element (150) is a strip with adhesive properties on both sides.
12. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein the second film section (3') was sterilized together with the first film section (3).
13. The medical fluid-conducting cassette (1000) according to one of the preceding claims, wherein at least one connection point (41) is a connection point for a substitute line or a substitute addition site.
14. The medical fluid-conducting cassette (1000) according to one of the preceding claims, embodied as a blood cassette.
15. A method for covering a hard body (1) of a medical fluid-conducting cassette (1000) for a medical fluid treatment by a film material, the method comprising the steps:
 - providing a cassette, the cassette (1000) comprising:
 - a hard body (1) comprising channels (49) for guiding fluids through the cassette (1000);
 - at least one connection point (41) configured to connect at least one of the channels (49) with an exterior of the blood cassette (1000) in a fluid communication;
 - attaching a first film section (3) to the hard body (1) so as to cover parts of the hard body (1) and so as to cover at least one of the channels (49) against an exterior of the blood cassette (1000);
 - attaching a second film section (3') to the hard body (1) so as to cover the connection point (41) in a releasable or removable manner, the second film section (3') comprising the same material as the first film section (3) or consisting thereof.
16. The method according to claim 15, wherein the first film section (3) and the second film section (3') are

being attached to the hard body (1) in the same working step and/or wherein the first film section (3) and the second film section (3') were produced integrally with each other.

5

17. The method according to claim 15 or claim 16, comprising the step:

- Providing or generating a perforation line (6) or gaps or slits between the first film section (3) and the second film section (3') of the covering device.

10

18. The method according to claim 15, 16 or 17, comprising the step:

15

- attaching at least one interconnecting element (150) to the second film section (3') on a side thereof that does not face the connection point (41).

20

25

30

35

40

45

50

55

Fig. 1

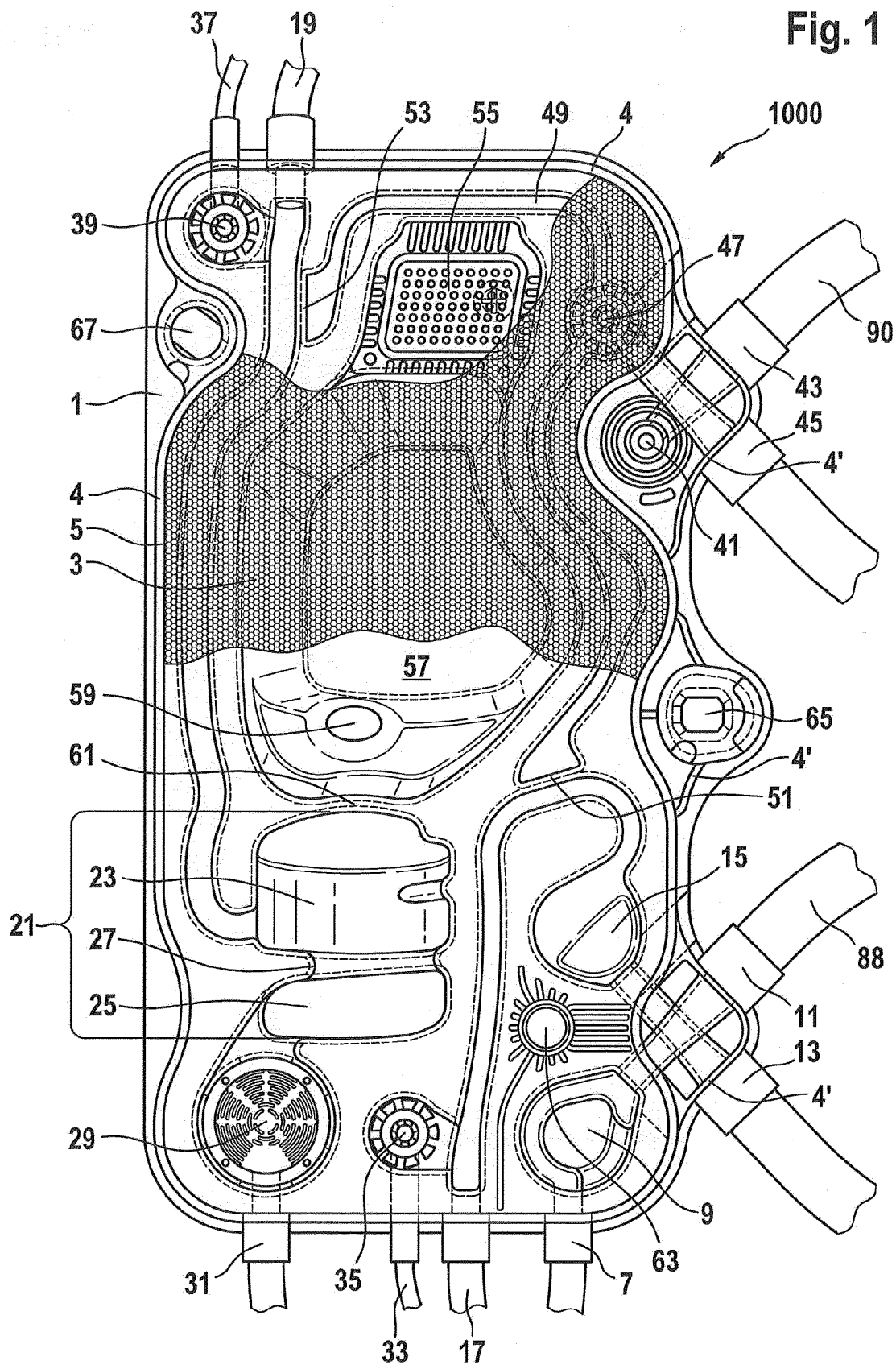


Fig. 2

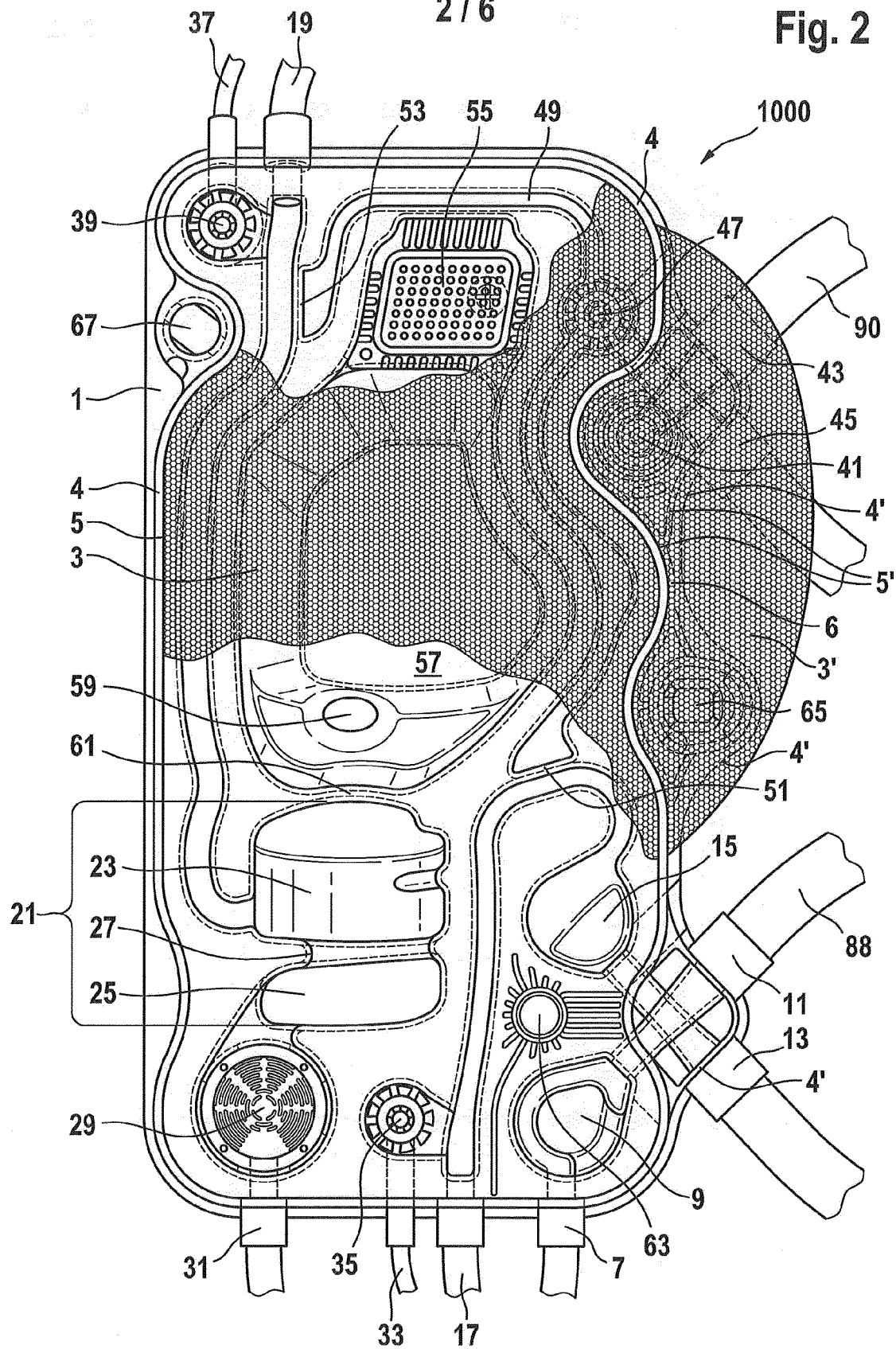


Fig. 3

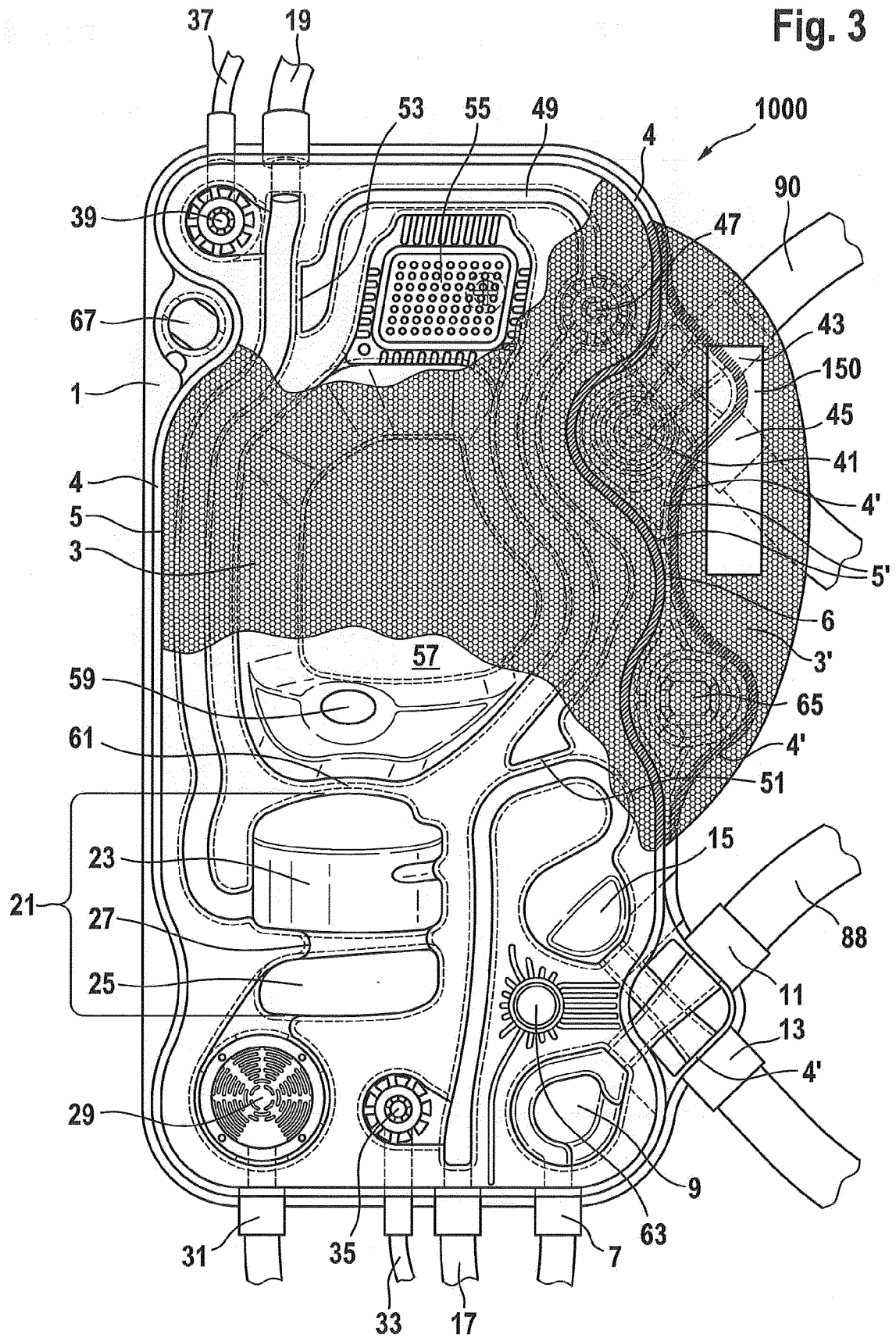


Fig. 4

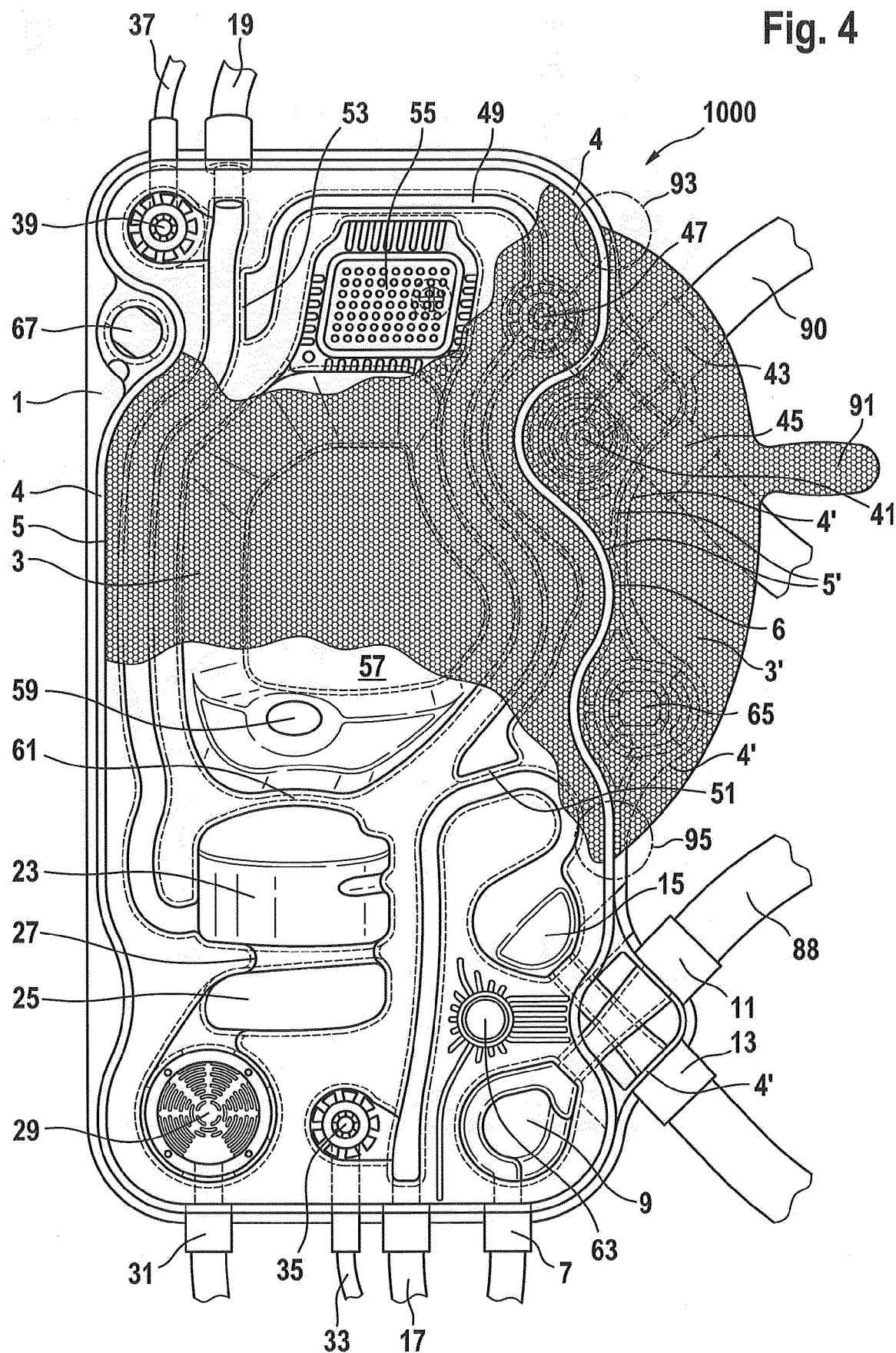
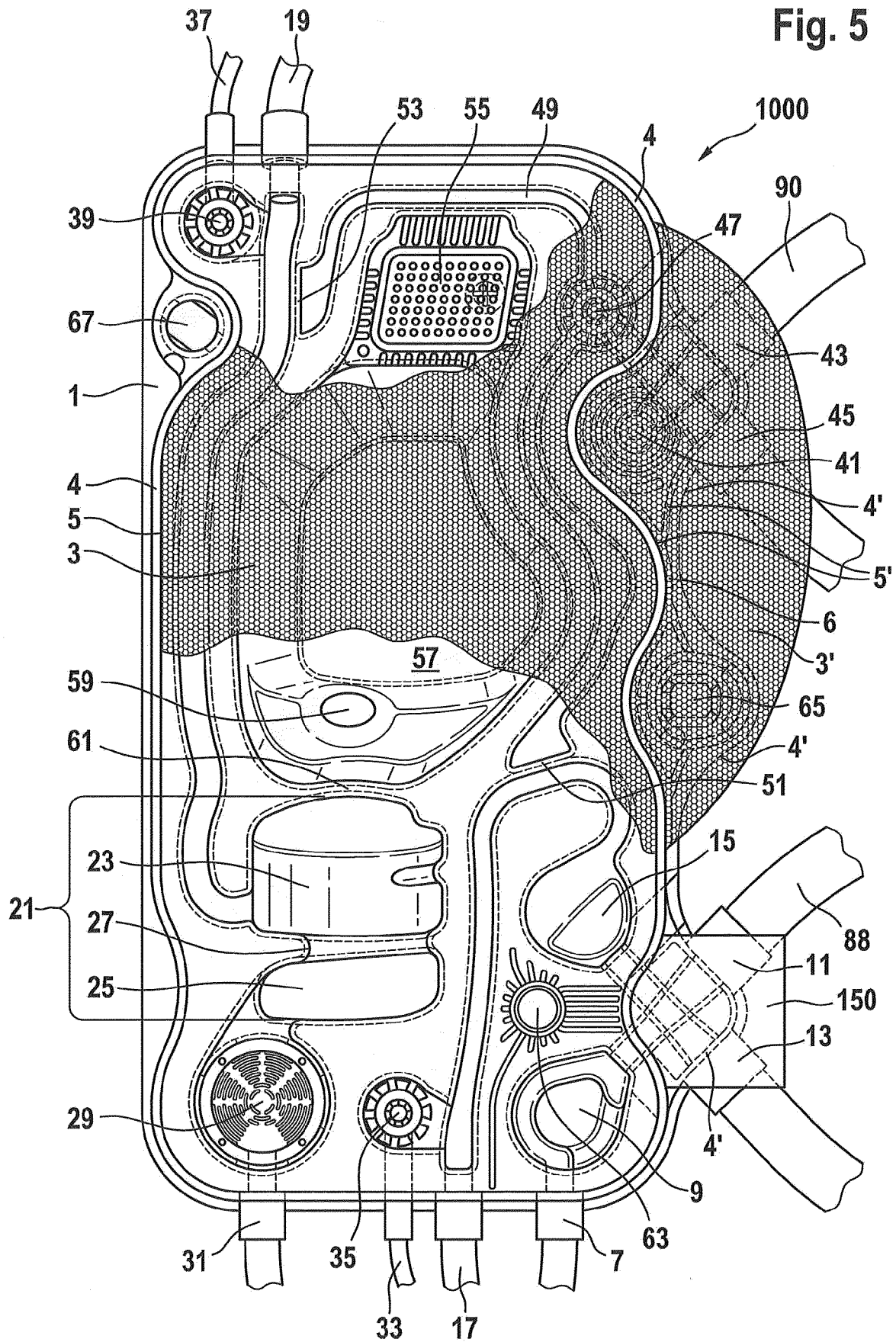
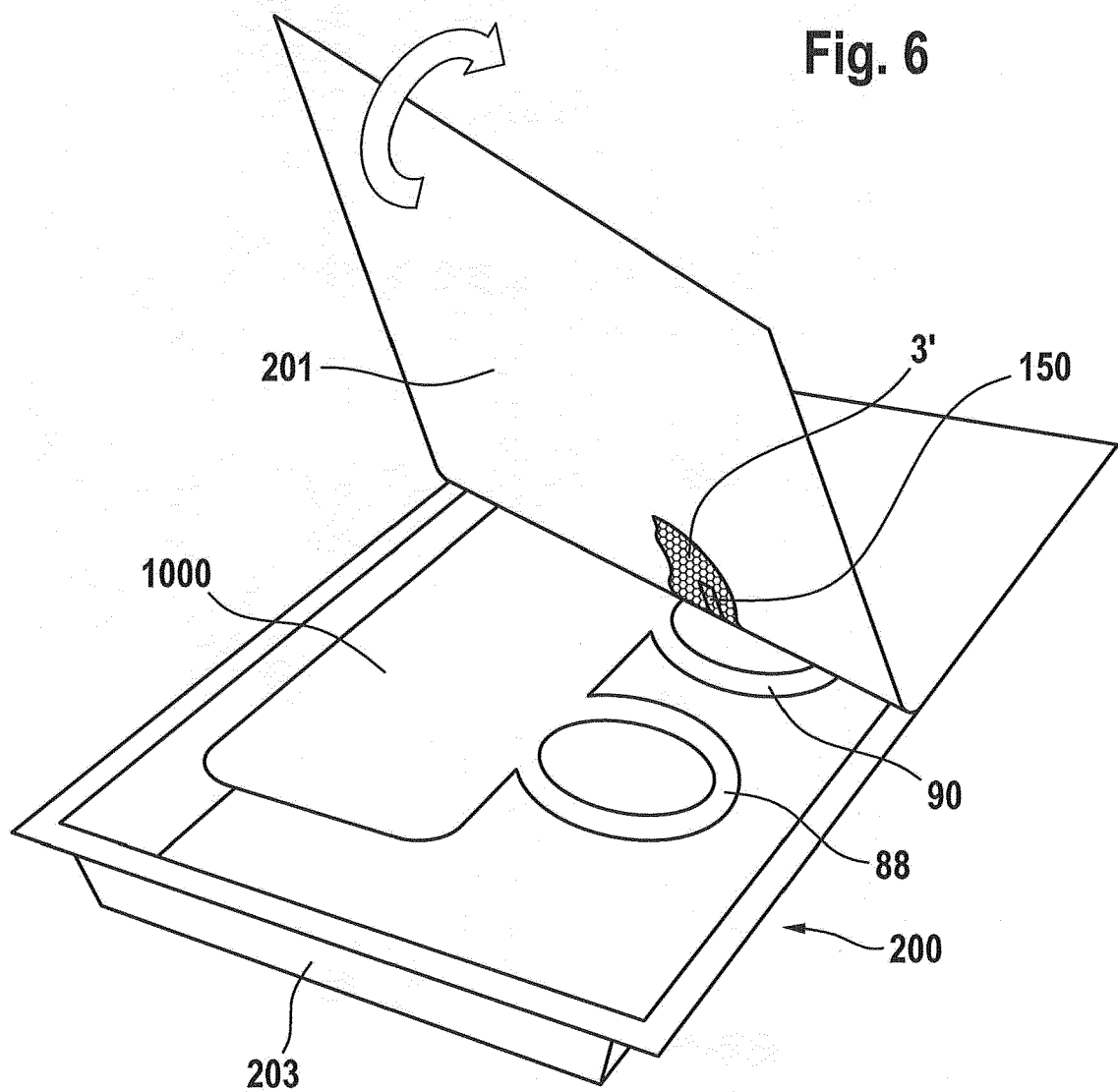


Fig. 5







EUROPEAN SEARCH REPORT

 Application Number
 EP 17 15 3740

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2007 042964 A1 (FRESENIUS MEDICAL CARE DE GMBH [DE]) 19 March 2009 (2009-03-19)	1,2,6, 15,16	INV. A61M1/14
A	* abstract; figures 5a-5c * * paragraphs [0050], [0107] - [0109] *	3-5, 7-14,17, 18	
X	DE 10 2014 102598 A1 (FRESENIUS MEDICAL CARE DE GMBH [DE]) 27 August 2015 (2015-08-27)	1,2,6, 13-16	
A	* abstract; figure 1 * * paragraphs [0044] - [0052] *	3-5, 7-12,17, 18	
X	US 2011/064608 A1 (LEE PATRICK JONG [US] ET AL) 17 March 2011 (2011-03-17) * abstract; figure 1 * * paragraphs [0026] - [0028] *	1,6,15	TECHNICAL FIELDS SEARCHED (IPC) A61M
A	EP 2 745 859 A1 (GAMBRO LUNDIA AB [SE]) 25 June 2014 (2014-06-25) * abstract; figure 1 * * paragraphs [0021] - [0023] *	8,9	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 June 2017	Examiner Kaden, Malte
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

 1
 EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 15 3740

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-06-2017

10

15

20

25

30

35

40

45

50

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102007042964 A1	19-03-2009	AU 2008298064 A1	19-03-2009
		AU 2014203211 A1	31-07-2014
		AU 2016203339 A1	16-06-2016
		BR P10816747 A2	17-03-2015
		CA 2699204 A1	19-03-2009
		CA 2908987 A1	19-03-2009
		CN 101918052 A	15-12-2010
		CN 103381275 A	06-11-2013
		CO 6382179 A2	15-02-2012
		DE 102007042964 A1	19-03-2009
		EA 201070351 A1	29-10-2010
		EA 201500442 A1	30-11-2015
		EG 25802 A	08-08-2012
		EP 2185215 A2	19-05-2010
		EP 3111973 A1	04-01-2017
		ES 2606376 T3	23-03-2017
		HK 1139088 A1	16-06-2017
		JP 5451617 B2	26-03-2014
		JP 5923081 B2	24-05-2016
		JP 6027524 B2	16-11-2016
		JP 6118853 B2	19-04-2017
		JP 2010538687 A	16-12-2010
		JP 2014111132 A	19-06-2014
		JP 2014128659 A	10-07-2014
		JP 2015231561 A	24-12-2015
		KR 20100061721 A	08-06-2010
		KR 20140141674 A	10-12-2014
		PL 2185215 T3	28-02-2017
		PT 2185215 T	20-12-2016
		TW 200920434 A	16-05-2009
		TW 201603855 A	01-02-2016
		US 2010200486 A1	12-08-2010
		US 2014034557 A1	06-02-2014
		WO 2009033511 A2	19-03-2009
DE 102014102598 A1	27-08-2015	CN 106068134 A	02-11-2016
		DE 102014102598 A1	27-08-2015
		EP 3110470 A1	04-01-2017
		US 2016367742 A1	22-12-2016
		WO 2015128474 A1	03-09-2015
US 2011064608 A1	17-03-2011	US 2011064608 A1	17-03-2011
		US 2014094740 A1	03-04-2014
EP 2745859 A1	25-06-2014	AU 2013365766 A1	23-07-2015
		CA 2895453 A1	26-06-2014

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

55

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 2736562 B1 [0002]